



Serial No. 10/053,311 David A. Potts

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1. (Currently amended) A method of treating the leach field of a sewage system to improve its functioning, wherein the leach field is comprised of a conduit buried within soil which runs continuously to an upper soil surface which is exposed to atmosphere. the conduit having an associated influence zone within the soil into which waste water flows and is acted upon biochemically to make the water more environmentally benign, which comprises: causing water to flow within the soil to one or more collection points within the leach field; ~~and, removing the water from said one or more collection points; and,~~ then pressurizing the conduit with air or other active gas, to cause said air or other active gas to flow from the conduit into the influence zone, to substantially replace water in influence zone.

2. (original) The method of claim 1 wherein said one or more collection points comprise the interior of said conduit.

3. (currently amended) The method of claim 2 which further comprises: inserting a pipe into the soil at a point spaced apart from the conduit; and, injecting air or other gas into the soil with pressure and volume sufficient to uplift or fragment the soil and to create new passages for water within the soil, prior to the step of removing the water, to enhance the flow of water toward and into the conduit.

4. (cancelled)

5. (currently amended) The method of claim 2 wherein the removing step is carried out by reducing the pressure in the conduit to less than atmospheric pressure, to both remove the water and cause inward flow of water from the influence zone. ~~The method of claim 4 wherein a sub-atmospheric pressure is applied to the conduit to remove the water and cause the flow from the influence zone.~~

6. (canceled)

7. (currently amended) The method of claim 52 further comprising: impeding vertically downward flow of atmospheric air, which is induced by the step of reducing the pressure in the conduit, through that portion of the soil surface which lies directly above the conduit, while allowing downward flow of air in adjacent areas of the soil surface, where soil runs continuously down to conduit. ~~from the soil surface which lies proximity above the conduit.~~

8. (original) The method of claim 2 wherein the sewage system is comprised of a septic tank, which further comprises: removing a portion of the contents of the septic tank in contemporaneous cooperation with the removing of water from, before pressurizing said conduit.

9. (canceled)

10. (currently amended) The method of claim 1 which further ~~wherein said one or more collection points comprises: inserting one or more vertical pipes inserted into the soil from the surface thereof at a point or points spaced apart from the conduit,~~ the pipes adapted to receive water at their lower ends, wherein said vertical pipes are said collection points. ~~further comprising: inserting said one or more pipes into the soil of the leach field, to enable water to flow into the pipes.~~

11. (original) A method of treating the leach field of a sewage system to improve its functioning, where the leach field is comprised of a conduit buried within soil which runs continuously to an upper soil surface which is exposed to atmosphere, the conduit having an associated influence zone within the soil into which waste water flows and is acted

continuously to an upper soil surface which is exposed to atmosphere, the conduit having an associated influence zone within the soil into which waste water flows and is acted upon biochemically to make the water more environmentally benign, which comprises: removing waste water from the conduit, sufficient to cause a substantial amount of water to flow from the influence zone into the conduit; and, then pressurizing said conduit, to cause air or other active gas to flow from the conduit and into the influence zone, to substantially replace water in influence zone.

12. (cancelled)

13. (currently amended) ~~The~~A method of claim 2, wherein the source of waste water in the leach field is a septic tank connected to said conduit~~treating the leach field of a sewage system during a time when there is a continuing inflow of waste water, to improve the functioning of the system; the leach field comprised of a septic tank connected to a conduit buried within soil; the conduit having an associated influence zone into which waste water flows to be acted upon biochemically and to be made more environmentally benign.~~The method of claim 2, wherein the source of waste water in the leach field is a septic tank connected to said conduit, which comprises: removing a substantial quantity of waste water from the septic tank; prior to~~and, then~~causing air or other active gas to flow through the influence zone; wherein the removal~~ing~~of waste water from the septic tank provides a place for accumulation of waste water which subsequently continues to flow into the sewage system from said source, thereby enabling the air or other active gas to flow through the influence zone without accompanying waste water, for a longer time than otherwise.

14. (currently amended) ~~A method of treating the leach field of poorly functioning sewage system comprised of a conduit buried within soil, the conduit having an associated influence zone into which waste water flows and is acted upon biochemically to make the water more environmentally benign, wherein the soil in the influence zone is essentially~~

~~saturated with water.~~ The method of claim 1 wherein said one or more collection points is created by the process which comprises:

inserting a pipe into the soil adjacent the influence zone from the surface of the soil, thereby making a hole in the soil surface;

flowing air through the pipe and into the soil, the air having a pressure, flow rate and quantity sufficient to uplift the soil and create fissures therein;

removing the pipe from the soil, thereby leaving an empty hole in the soil; and,

sealing said empty hole, to inhibit flow of air to or from ~~through~~ the hole;

wherein, water in the influence zone flows through said fissures to substantially decrease the water content of the influence zone.

15. (currently amended) The method of claim 14 which further comprises: ~~applying air pressure to~~ pressurizing the conduit after sealing said empty hole, to cause air or other active gas to flow through said fissures in the soil; wherein the air or other active gas pressure, flow rate and quantity is insufficient to uplift the soil and create fissures therein.

16. (currently amended) Apparatus for restoring the performance of a leach field of a sewage system which is comprised of a conduit buried within soil, the conduit having an associated influence zone in which waste water is acted on biochemically to make the water more environmentally benign, which comprises: means for causing water to flow from the influence zone toward the interior of said conduit; ~~and,~~ means for removing water from the interior of said conduit; and, means for applying air pressure to the interior of said conduits during a time when use of said means for causing water to flow from the influence zone to the conduit interior is ceased.

17. (cancelled)

18. (new) The method of claim 3, wherein the inserting of a pipe for injecting and uplifting leaves a hole in the surface of the soil, which further comprises: sealing said hole prior to the step of applying air or other active gas.